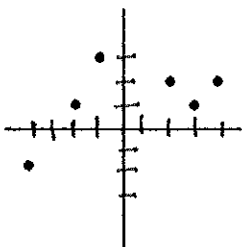


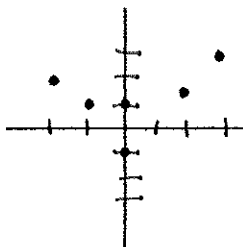
FUNctions

Which of the following represent a function? Find the domain and range of each.

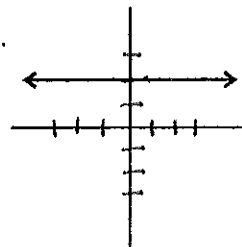
1.



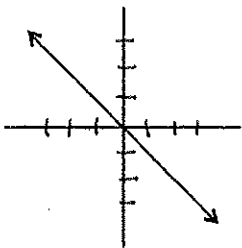
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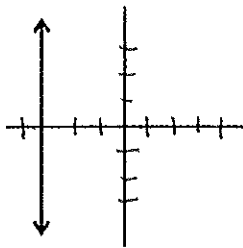
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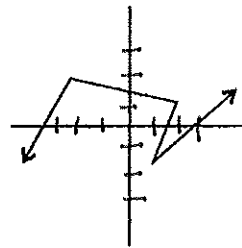
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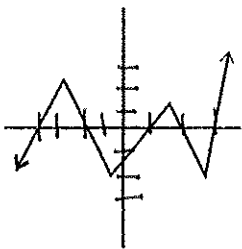
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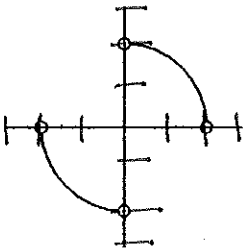
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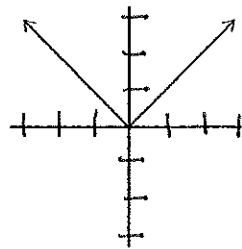
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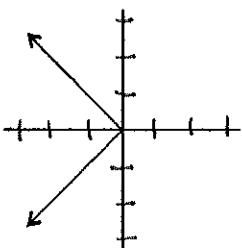
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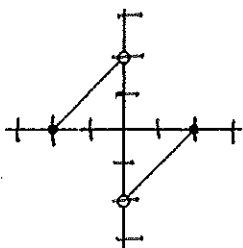
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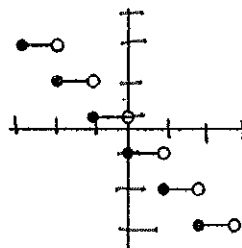
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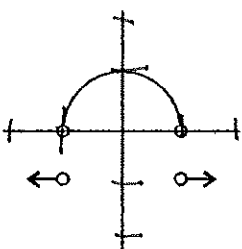
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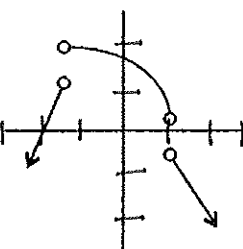
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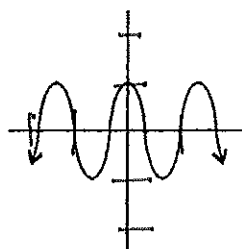
13.



14.

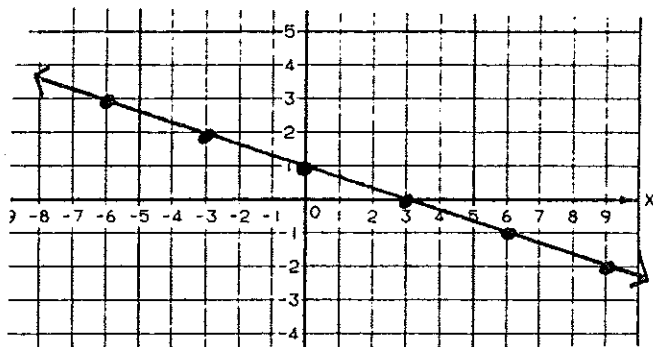


15.



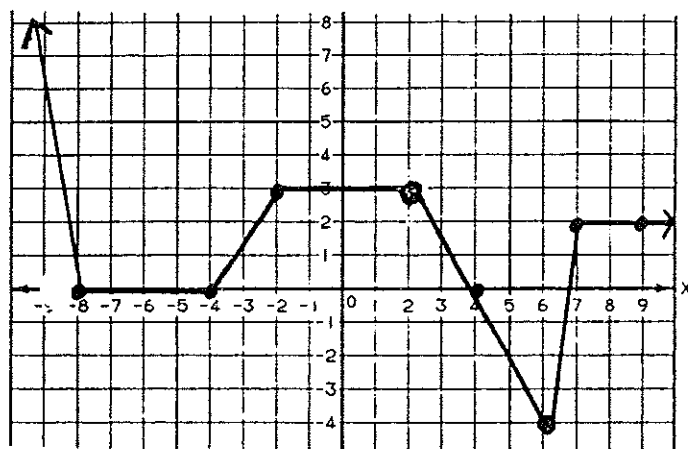
1. D: _____ R: _____

$f(3) = \underline{\hspace{2cm}}$ $f(-6) = \underline{\hspace{2cm}}$



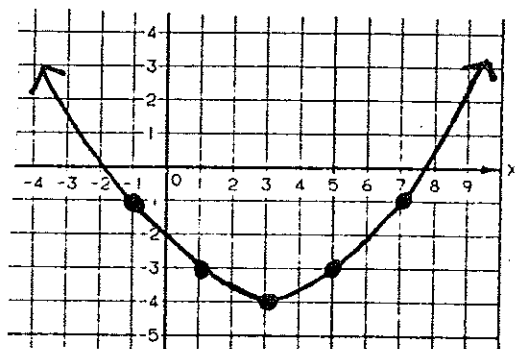
2. D: _____ R: _____

$f(-2) = \underline{\hspace{2cm}}$ $f(6) = \underline{\hspace{2cm}}$



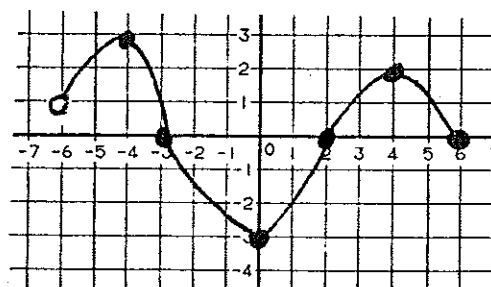
3. D: _____ R: _____

$f(5) = \underline{\hspace{2cm}}$ $f(x) = -3$ so $x = \underline{\hspace{2cm}}$



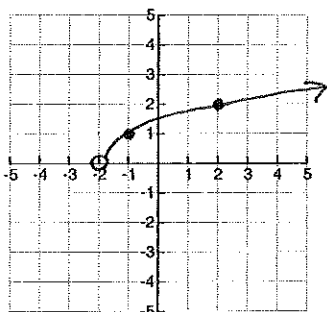
4. D: _____ R: _____

$f(x) = -3$ so $x = \underline{\hspace{2cm}}$ $f(6) = \underline{\hspace{2cm}}$



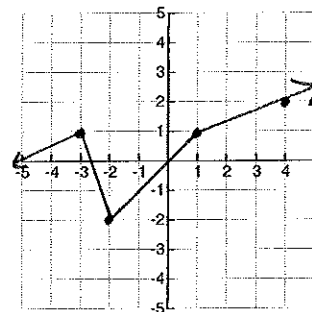
5. D: _____ R: _____

$f(-1) = \underline{\hspace{2cm}}$ $f(x) = 2$ so $x = \underline{\hspace{2cm}}$



6. D: _____ R: _____

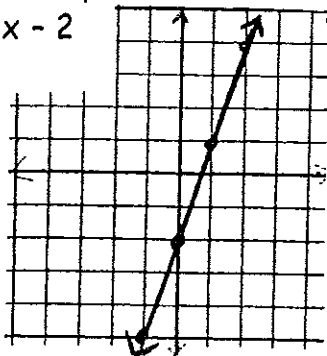
$f(x) = -1$ so $x = \underline{\hspace{2cm}}$ $f(4) = \underline{\hspace{2cm}}$



Function Notation & Domain and Range

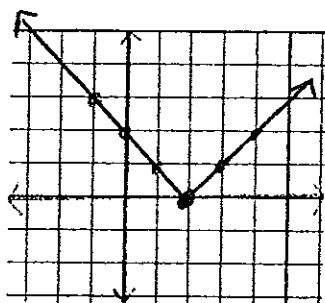
For each of the following functions, I have provided an equation and a graph. Use the information provided to answer each question.

1. $y = 3x - 2$



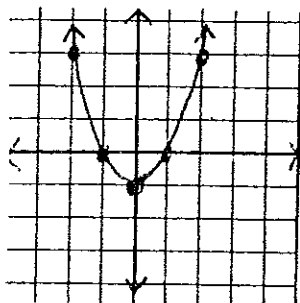
- write the equation in function notation: _____
- State the Domain: _____
- State the Range: _____
- Find each of the following function values: $f(1) = \underline{\hspace{2cm}}$
 $f(0) = \underline{\hspace{2cm}}$
- What input (x-value) produces the function value of 4? _____

2. $y = |x - 2|$



- write the equation in function notation: _____
- State the Domain: _____
- State the Range: _____
- Find each of the following function values: $f(2) = \underline{\hspace{2cm}}$
 $f(-1) = \underline{\hspace{2cm}}$
- what inputs produces the function value of 2? _____

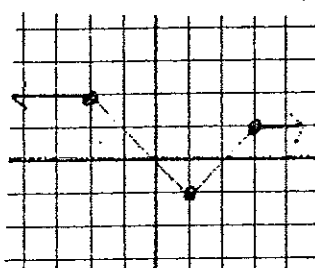
3. $y = x^2 - 1$



- write the equation in function notation: _____
- State the Domain: _____
- State the Range: _____
- Find each of the following function values: $f(1) = \underline{\hspace{2cm}}$
 $f(0) = \underline{\hspace{2cm}}$
- what inputs produces the function value of 3? _____

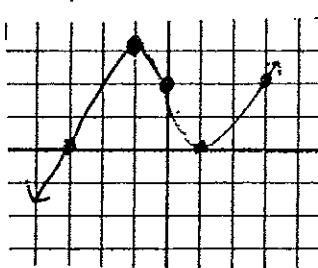
Given the following graphs, answer the questions below.

4.



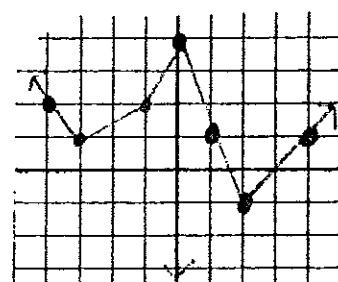
- Domain: _____
- Range: _____
- $f(3) = \underline{\hspace{2cm}}$
- where is $f(x) = 2$? _____

5.



- Domain: _____
- Range: _____
- $f(0) = \underline{\hspace{2cm}}$
- where is $f(x) = 0$? _____

6.



- Domain: _____
- Range: _____
- $f(-1) = \underline{\hspace{2cm}}$
- where is $f(x) = 1$? _____

Algebra 2***Practice With Function Notation***

Name: _____

1. $f(x) = -2x + 1$

a) Is this function linear? _____

b) $f(-1) =$ _____

c) $f(3) =$ _____

d) find x if $f(x) = 10$

2. $f(x) = x^2 - x + 1$

a) Is this function linear? _____

b) $f(-3) =$ _____

c) $f(2) =$ _____

3. $f(x) = \frac{x-4}{x}$

a) Is this function linear? _____

b) $f(-2) =$ _____

c) $f(3) =$ _____

d) find x if $f(x) = 2$

4. $f(x) = \frac{1}{2}x - 1$

a) Is this function linear? _____

b) $f(-5) =$ _____

c) $f(4) =$ _____

d) find x if $f(x) = -7$

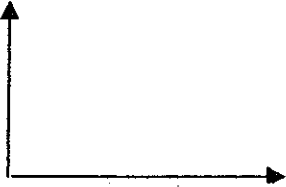
e) $f(2) + f(-4) =$ _____ $+$ _____ $=$ _____

f) $f(0) - f(-6) =$ _____ $+$ _____ $=$ _____

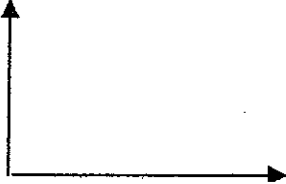
Determining Independent and Dependent Variables

Determine the dependent and independent variable for each. Circle the dependent variable and underline the independent variable. Then sketch a reasonable graph for each. Remember to label your axes.

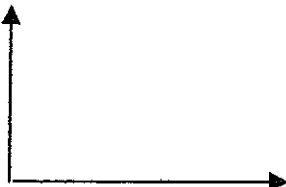
1. The distance required to stop your car and how fast you are going.



2. The altitude of a punted football and the number of seconds since it was kicked.



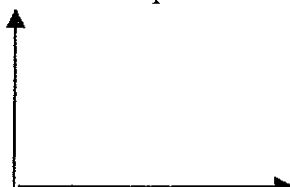
3. Dan Druff's age and the number of hairs on his head.



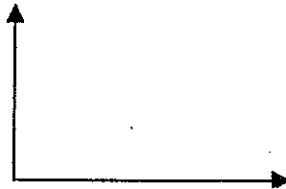
4. Your age and your height.



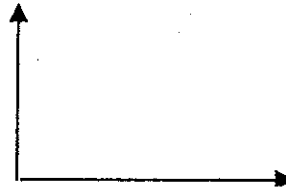
5. The price you pay for a pizza and the diameter of the pizza.



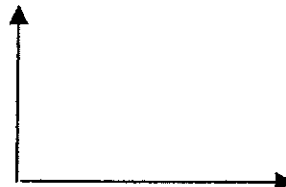
6. The time of sunset and the day of the year.



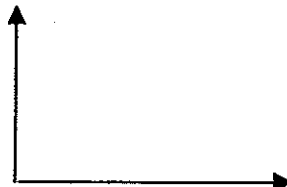
7. You turn on the hot water faucet. The number of seconds the water has been running and the temperature of the water.



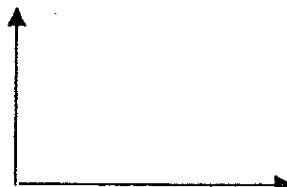
8. The weight of a package and the amount of postage you put on it.



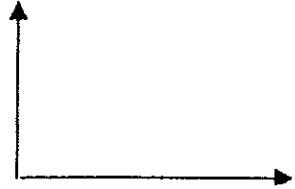
9. The number of breaths you breathe per minute and the number of minutes since you finished a race.



10. The number of breaths you breathe into a balloon and the diameter of the balloon.



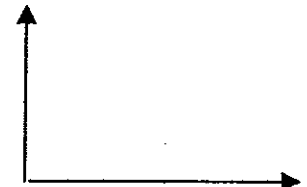
11. The number of letters in the corner mailbox and the time of day.



12. The cents you pay for a long distance call and the number of minutes you talk.



13. A sand castle is being washed away by the waves. The variables are height and time.



14. Your feelings for your date and the number of stupid jokes he/she tells.



15. A car is driving along the interstate. It gets off on an exit ramp, comes to a stop and then gets back on the interstate.



Practice B

For use with pages 82–89

Find the slope and y-intercept of the line.

1. $y = 8x - 7$

2. $y = -10x$

3. $x + 4y - 6 = 0$

4. $2x + 4y - 1 = 0$

5. $3x - 7y + 5 = 0$

6. $-2x + 3y - 6 = 0$

Find the intercepts of the line.

7. $y = 3x - 1$

8. $y = -x + 6$

9. $y = \frac{2}{3}x + 2$

10. $y = -\frac{1}{4}x + 3$

11. $y = \frac{5}{3}x - 4$

12. $y = -\frac{7}{2}x - 3$

13. $2x - y - 4 = 0$

14. $-3x + 4y - 12 = 0$

15. $5x + 2y + 8 = 0$

16. $x - 3y = 4$

17. $2x + 5y = -8$

18. $-6x + y = 3$

Graph the equation.

19. $y = 4x + 3$

20. $y = -3x - 2$

21. $x + 6y - 3 = 0$

22. $7x - 2y + 6 = 0$

23. $-4x + 8y - 20 = 0$

24. $-6x + 9y = 18$

25. $2x - y = 2$

26. $8x - 2y = 6$

27. $3x - 5y + 15 = 0$

Teeter-Totter In Exercises 28–30, use the following information.

The center post on a teeter-totter is 2 feet high. When one side rests on the ground, each end of the teeter-totter is 7 feet from the center of the post.

28. Find the slope of the teeter-totter.

29. Find the y-intercept of the teeter-totter.

30. Write an equation of the line that follows the path of the teeter-totter.

31. **Saving Change** Each time you get dimes or quarters for change, you throw them into a jar. You are hoping to save \$50. Write a model that shows the different numbers of dimes and quarters that you could accumulate to reach your goal.

32. **Commission Sales** A salesperson receives a 3% commission on furniture sold at a sale price and a 4% commission on furniture sold at the regular price. The salesperson wants to earn a \$250 commission. Write a model that shows the different amounts of sale-priced and regular-priced furniture that can be sold to reach this goal.

Practice B

For use with pages 91–98

Write an equation of the line that has the given slope and y-intercept.

1. $m = 4, b = -4$

2. $m = -6, b = 3$

3. $m = \frac{4}{3}, b = 6$

4. $m = -\frac{1}{2}, b = -4$

5. $m = 8, b = 0$

6. $m = 0, b = 5$

Write an equation of the line that passes through the given point and has the given slope.

7. $(2, 1), m = -2$

8. $(-4, 3), m = 5$

9. $(7, -5), m = 1$

10. $(-1, -10), m = 3$

11. $\left(\frac{1}{2}, 4\right), m = -8$

12. $\left(\frac{2}{3}, 0\right), m = -4$

Write an equation of the line that passes through the given points.

13. $(-2, 1), (2, 4)$

14. $(-1, 3), (1, -1)$

15. $(-3, -1), (3, 2)$

16. $(4, -2), (6, -3)$

17. $(1, 5), (-4, 0)$

18. $(3, -7), (-2, 3)$

19. $(-6, 1), (-5, 4)$

20. $(-3, -2), (4, 1)$

21. $(10, -4), (6, -10)$

The variables x and y vary directly. Write an equation that relates the variables. Then find y when $x = 10$.

22. $x = 2, y = 6$

23. $x = -1, y = 5$

24. $x = 4, y = -10$

25. $x = 1, y = 0.25$

26. $x = -8, y = 2$

27. $x = \frac{1}{3}, y = \frac{9}{10}$

Measuring Speed In Exercises 28 and 29, use the following information.

The speed of an automobile in miles per hour varies directly with its speed in kilometers per hour. A speed of 64 miles per hour is equivalent to a speed of 103 kilometers per hour.

28. Write a linear model that relates speed in miles per hour to speed in kilometers per hour.

29. You are driving through Canada and see a speed limit sign that says the speed limit is 80 kilometers per hour. You are traveling 55 miles per hour. Are you speeding?

Fish and Shellfish Consumption In Exercises 30 and 31, use the following information.

For 1992 through 1994, the per capita consumption of fish and shellfish in the U.S. increased at a rate that was approximately linear. In 1992, the per capita consumption was 14.7 pounds, and in 1994 it was 15.1 pounds.

30. Write a linear model for the per capita consumption of fish and shellfish in the U.S. Let t represent the number of years since 1992.

31. What would you expect the per capita consumption of fish and shellfish to be in 2002?

Writing Equations of Lines

For #1-20, write the equation of the ODD problems in slope-intercept form and the EVEN problems in point-slope form. Write the most appropriate equation for #21-24. Show all work on a separate piece of paper.

1. passes through the points (4,3) and (2,-6)
2. passes through the point (5,4) with slope of -2
3. passes through the point (-5,-4) with the y-intercept of 4
4. passes through points (4,-6) and (-6,-6)
5. parallel to $y = 3x + 1$ with through (0,-3)
6. perpendicular to $y = \frac{1}{3}x - 2$ through the point (4,-4)
7. has slope of $\frac{4}{3}$ and y-intercept 2
8. parallel to $y = 2x - 2$ and passes through the point (-4,-4)
9. has x-intercept 2 and y-intercept -3
10. perpendicular to $y = 4x - 1$ and going through the point (-2,12)
11. passes through (1,4) with slope 2
12. passes through (7,2) and (-5,4)
13. $m = -2$, passes through the midpoint of the segment connecting (3,-2) and (7,4)
14. parallel to $3y = 6x - 4$ through (-3,5)
15. perpendicular to $4y = -8x - 1$ with y-intercept of -3
16. passes through (1,1) and parallel to the line containing (3,4) and (5,8)
17. the x-intercept is -3 and the y-intercept is -4
18. parallel to $3x - 2y = 5$ and contains (-1,1)
19. the y-intercept is -3 and perpendicular to $3x + y = 4$
20. through the midpoint of the segment connecting (0,2) & (-4,6) and perpendicular to that seg.
21. contains (3,-8) and has undefined slope
22. passes through (-2,6) with zero slope
23. passes through (-6,5) and perpendicular to the y-axis
24. parallel to $x = -2$, through (4,-10)

Algebra 2 Prep

Writing Equations of Lines in Point – Slope Form

I. Write the equation of the line in point – slope form given the following information. Graph the odd numbered problems.

1. through (1,4) with slope 2
2. through (7,2) and (-5,4)
3. with slope -3 and y-intercept 2
4. parallel to $3y = 6x - 4$ through (-3,5)
5. perpendicular to $4y = -8x - 1$ with y-intercept of -3
6. through (1,1) and parallel to the line containing (3,4) and (5,8)
7. through (-6,5) and perpendicular to the y-axis
8. the x-intercept is -3 and the y-intercept is -4
9. parallel to $3x - 2y = 5$ and contains (-1,1)
10. the y-intercept is -3 and perpendicular to $3x + y = 4$
11. contains (3,-8) and has undefined slope
12. passes through (-2,6) with zero slope

II. Short Answers.

1. For what value of “k” is (1,3) a solution of $2x - ky = -4$?
2. Does (-1,-1) lie on the line with equation $2x - 3y = 1$?
3. Find the slope of the line containing the points (1,2) and (3,3).
4. If a line has slope $\frac{-2}{3}$ and contains the points (6,-3) and (3, x), find x.
5. Find the x-intercept and y-intercept of the line $2y + 4x = 3$.
6. Lines that fall from the upper left to the lower right have what kind of slope?
7. A line with the equation $y = mx$ passes through what point?